



## ATTACHMENT A

### Remarks

In response to the Office Action mailed on October 20, 2006, reconsideration of the rejection of the claims is respectfully requested.

#### **A. Rejection of Claims 4, 12 and 27 under 35 U.S.C. § 112**

Claims 4 and 12 have been rejected under 35 U.S.C. § 112, second paragraph for use of the limitation “activating a flash visual indicator.”

Claim 4 has been amended to recite that that the claimed apparatus further comprises a “circuit for flashing the visual indicator.” Claim 12 has been amended to recite that the claimed method further comprises the step of “flashing the visual indicator.” Both amendments are supported by paragraph [0021] of the specification

Claim 27 has been rejected under 35 U.S.C. § 112, second paragraph, for lacking antecedent basis for the limitation “said computer system.” Claim 27 depends from claim 26, which has been amended to recite “an apparatus for detecting and indicating faults on an computer motherboard and in a memory subsystem of a computer system” and to thus provide antecedent basis for the limitation “said computer system” in claim 27.

#### **B. Rejection of Claims 1 – 3, 5 – 7, 9 – 11, 13 – 15, 17 – 19, 21, and 23 – 25 under 35 U.S.C. § 103(a)**

Claims 1 – 3, 5 – 7, 9 – 11, 13 – 15, 17 – 19, 21, and 23 – 25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cowan (U.S. Patent No. 6,069,182) in view of Dai (U.S. Patent Application Publication No. 2002/0032885). This rejection is respectfully traversed, although independent claims 1, 11, 19 have been amended to clarify the distinctions between the claimed invention and the cited references.

Claim 1 recites an apparatus for detecting and indicating faults on a computer motherboard. A microprocessor executes diagnostic instructions to detect faults on the computer motherboard responsive to an initialization signal, and a visual indicator

provides a visual indication when a fault on the motherboard is detected during execution of the diagnostic instructions by the microprocessor. This addresses the problem of a fault on the motherboard making the BIOS ROM unavailable to provide the POST routines to the motherboard CPU, thereby preventing the POST from diagnosing and indicating the cause of the failure.

For example, as discussed in paragraph [0005] of the application, in the event of a blank screen, the user may suspect failure on the motherboard. However, the user may not be sure of the failure on the motherboard since the event occurs before the POST diagnostics are available. The user may have to assume that it could be a failure of the motherboard, a failure of any one of the devices on a peripheral card, a fault occurring in any one of the slots or the like, which may also render the CPU unable to retrieve further instructions of the POST. Therefore, the embedded diagnostics may not be useful in isolating the motherboard failure from failures of other components not on the motherboard that occur during the pre-booting phase. The invention as recited in claim 1 provides a visual indication that a fault has occurred on the motherboard, even if the POST is unable to operate to diagnose and indicate the cause of the failure.

The Office Action suggests that the Cowan reference discloses an apparatus for detecting and indicating faults on a computer motherboard, including a microprocessor, a memory device having diagnostic instructions, and a visual indicator indicating a fault on the motherboard. However, it is admitted in the Office Action that the Cowan reference does not disclose execution of the diagnostic instructions in response to receiving an initialization signal. The Office Action then suggests that the Dai reference discloses a BIOS test performed at power-on that outputs test results to LEDs and performs initialization routines for a motherboard.

However, neither the Cowan reference nor the Dai reference address the problem of a fault on the motherboard making the BIOS ROM unable to provide the POST routines to the motherboard. Neither reference teaches or suggests executing diagnostic instructions to detect faults on a computer motherboard in response to receiving an initialization signal, and providing a visual indication when a fault on the computer motherboard is detected during execution of the diagnostic instructions.

The Cowan reference teaches a terminate and stay resident (TSR) program encoded on a portable program storage medium that is loaded in a memory of a remote PC. However, a fault on the motherboard making the BIOS ROM unable to provide POST routines to the motherboard (a “blank screen” failure) would certainly prevent the loading of the TSR program from a portable storage medium into the memory of the remote PC as taught by the Cowan reference.

The Dai reference simply discloses a conventional power on self test as part of the BIOS program that is the first program executed after the personal computer is turned on (paragraphs [0007] and [0009]). The tests described in the Dai reference test the status of hardware, such as the memory, chipsets, CMOS stored data, keyboard and disk drives (paragraph [0007]). The Dai reference does not teach executing diagnostic instructions to detect faults on a computer motherboard in response to receiving an initialization signal. In fact, the tests described in the Dai reference require the motherboard to be functional, so that a fault on the motherboard could prevent the tests described in the Dai reference from ever executing. Accordingly, the Dai system suffers from the very disadvantages described in the background section (paragraph [0005]) of the present application.

Thus, neither the Cowan reference nor the Dai reference teach or suggest the apparatus recited in claim 1.

Claims 2, 3, 5 – 7, 9 and 10 depend from claim 1 and are allowable for at least the reasons provided in support of claim 1.

Claim 11 recites a method for detecting and indicating that there are no faults on a computer motherboard, including the steps of turning on a visual indicator when power is applied to a computer motherboard, and turning the visual indicator off when no faults on the computer motherboard are detected during the execution, responsive to an initialization signal, of diagnostic instructions for detecting faults on the computer motherboard. The diagnostic instructions are executed in response to receiving an initialization signal. Claim 11 is rejected on the same reasoning as the rejection of claims 1 – 3.

As discussed above, neither the Cowan reference nor the Dai reference teach or suggest the apparatus of claims 1 - 3. Thus, for similar reasons to the reasons provided above with respect to claims 1 – 3, neither the Cowan reference nor the Dai reference teach or suggest the apparatus recited in claim 11.

Claims 13 – 15, 17, and 18 depend from claim 11 and are allowable for at least the reasons provided in support of claim 11.

Claim 19 recites an apparatus for detecting and indicating that there are not faults in a computer motherboard, including means for performing the steps recited in claim 11. Therefore, claim 19, as well as claims 21, and 23 – 25 which depend therefrom, are allowable for at least the reasons discussed above.

**C. Rejection of Claims 4, 12, 20 and 26 – 28 under 35 U.S.C. § 103(a)**

Claims 4, 12, 20 and 26 – 28 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cowan in view of Dai and in further view of Model MK-70.

Claims 4, 12, 20 and 26 – 28 all recite the limitations contained in independent claims 1, 11 and 19, and are further directed at flashing the visual indicator when a fault is found in a memory subsystem.

For the reasons discussed above, the Cowan and Dai references fail to teach or suggest the limitations of independent claims 1, 11 and 19. The Model MK-70 reference is cited merely for the proposition that a flashing light “works great as an effective attention-getter, warning light, reminder light, alarm decoy, etc...” (right side, about the middle of the page). Thus, the Model MK-70 reference also fails to teach or suggest the subject matter of the parent claims. Therefore, claims 4, 12, 20 and 26 – 28 are distinguishable over Cowan in view of Dai and in further view of Model MK-70.

**D. Rejection of Claims 8, 16 and 22 under 35 U.S.C. § 103(a)**

Claims 8, 16 and 22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Cowan in view of Dai and in further view of BOXX Box Boxes Clever.

Claims 8, 16 and 22 depend from independent claims 1, 11 and 19, respectively, and each recite the visual indicator being an internal visual indicator.

The BOXX reference is cited as disclosing visual indicators concealed inside of a computer casing. However, the BOXX reference does not overcome the deficiencies of the Cowan and Dai references with respect to the independent claims, and, therefore, dependent claims 8, 16 and 22 are allowable for at least this reason.

## **END REMARKS**